

	L #	Hits	Type	Search Text	DBs
1	L1	322	BRS	cocrb cocrptb cocrpptab coptcrb coptcrtab co-cr-b co-cr-pt-b co-cr-pt-ta-b co-pt-cr-b co-pt-cr-ta-b	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
2	L2	12403 6	BRS	magnetic adj recording	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
3	L3	294	BRS	1 and 2	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
4	L4	21461 66	BRS	perpendicular vertical	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB

	L #	Hits	Type	Search Text	DBs
5	L5	170	BRS	3 and 4	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
6	L6	44492	BRS	coercivity hc "h.sub.c"	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
7	L7	20535	BRS	soft adj magnetic	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
8	L8	18388	BRS	keeper	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB

	L #	Hits	Type	Search Text	DBs
9	L9	8	BRS	5 and 8	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
10	L10	1422	BRS	nial	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
11	L11	84	BRS	6 and 10 and 2 and 4	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
12	L12	84	BRS	thickness and 11	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB

	L #	Hits	Type	Search Text	DBs
13	L13	551128	BRS	protective overcoat overlayer	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
14	L14	72	BRS	12 and 13	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
15	L15	2	BRS	14 and 8	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
16	L16	38091	BRS	hc "h.sub.c"	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB

	L #	Hits	Type	Search Text	DBs
17	L17	1858	BRS	2 and 4 and 16	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
18	L18	11606	BRS	underlayer	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
19	L19	257	BRS	17 and 18	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
20	L20	15670 70	BRS	thickness	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB

	L #	Hits	Type	Search Text	DBs
21	L21	253	BRS	19 and 20	USPA T; US-P GPUB ; EPO; JPO; DERW ENT; IBM_ TDB
22	L23	18737	BRS	7 8	USPA T
23	L24	599	BRS	20 near5 23	USPA T
24	L25	20	BRS	19 and 24	USPA T

(FILE 'HOME' ENTERED AT 15:34:32 ON 25 JUL 2003)

FILE 'REGISTRY' ENTERED AT 15:34:59 ON 25 JUL 2003

L1 55 S CO.CR.B/RC
L2 26 S CO.CR.PT.B/RC
L3 2 S CO.CR.PT.TA.B/RC

FILE 'CAPLUS' ENTERED AT 15:35:41 ON 25 JUL 2003

L4 61 S L1 OR L2 OR L3
L5 22059 S MAGNETIC (A) RECORDING
L6 200659 S PERPENDICULAR OR VERTICAL
L7 7 S L4 AND L5 AND L6

=> s l4 and l5

L8 24 L4 AND L5

=> s l8 not l7

L9 17 L8 NOT L7

=> d 1- all

L7 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2003 ACS on STN
 AN 2003:396311 CAPLUS
 DN 138:394737
 TI **Perpendicular magnetic recording** medium and
 magnetic disk recording apparatus
 IN Hikosaka, Takashi; Oikawa, Soichi; Nakamura, Futoshi; Iwasaki, Takeshi;
 Sakai, Hiroshi; Sakawaki, Akira
 PA Japan
 SO U.S. Pat. Appl. Publ., 13 pp.
 CODEN: USXXCO

DT Patent
 LA English
 IC ICM B32B027-06
 NCL 428480000; 428694000MM; 428693000
 CC 77-8 (Magnetic Phenomena)
 Section cross-reference(s): 56, 75

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003096127	A1	20030522	US 2002-234719	20020905
	JP 2003157516	A2	20030530	JP 2001-358205	20011122
PRAI	JP 2001-358205	A	20011122		

AB A **perpendicular magnetic recording** material
 with high thermal-decay resistance and a high signal-to-noise ratio and
 decreased thickness of the **magnetic recording** layer is
 claimed. Epitaxial growth of a magnetic grain crystal in a
perpendicular magnetic recording layer is
 interrupted to achieve this end. For example in a magnetic disk
 fabrication, a 1st **perpendicular** film of Co73Pt5Cr22 was
 deposited by sputtering and a 2nd **perpendicular** layer of
 Co64Pt24Cr12 was sputter deposited in an Ar-O2 atm. The 2nd layer had a
 lattice const. >2% that of the first layer. The signal-to-noise ratio was
 23.0 dB compared to 20.5 dB for disks without the 2nd layer.

ST sputter epitaxy interruption **perpendicular magnetic**
recording disk noise

IT Epitaxy
 Magnetic disks

Magnetic recording materials
 Sputtering

(**perpendicular magnetic recording** medium
 for disk prepd. by interrupted sputter epitaxy)
 IT 7782-44-7, Oxygen, processes 301524-32-3, Chromium 16, cobalt 64,
 platinum 20 (atomic)

RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical,
 engineering or chemical process); PROC (Process); USES (Uses)

(**perpendicular magnetic recording** medium
 for disk prepd. by interrupted sputter epitaxy)

IT 7440-37-1, Argon, uses
 RL: NUU (Other use, unclassified); USES (Uses)

(**perpendicular magnetic recording** medium
 for disk prepd. by interrupted sputter epitaxy)

IT 7440-44-0, Carbon, processes 7440-58-6, Hafnium, processes
 129516-28-5, Chromium 12, cobalt 64, platinum 24 (atomic) 500588-49-8,
 Ruthenium 90, titanium 10 (atomic) 527698-12-0, Chromium 22, cobalt 73,
 platinum 5 (atomic) 527698-13-1, Chromium 18, cobalt 62, platinum 20
 (atomic) 527698-14-2, Chromium 12, cobalt 68, platinum 20 (atomic)
 527698-15-3, Boron 1, chromium 20, cobalt 74, platinum 5 (atomic)
 527698-16-4, Chromium 21, cobalt 55, platinum 24 (atomic)

RL: PEP (Physical, engineering or chemical process); PYP (Physical
 process); TEM (Technical or engineered material use); PROC (Process); USES
 (Uses)

(**perpendicular magnetic recording** medium
 for disk prepd. by interrupted sputter epitaxy)

IT 191474-05-2P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**perpendicular magnetic recording** medium
for disk prepd. by interrupted sputter epitaxy)

L7 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2003 ACS on STN
AN 2003:376200 CAPLUS
DN 138:361602
TI Design of a layered thin-film media for **perpendicular magnetic recording**
IN Zheng, Min; Choe, Geon
PA USA
SO U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM C23C014-00
NCL 428195000; 428694000TS; 204192100
CC 77-8 (Magnetic Phenomena)
Section cross-reference(s): 55, 56, 57

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003091798	A1	20030515	US 2002-207698	20020729
PRAI	US 2001-345404P	P	20011109		

AB The invention relates to the design of a layered thin-film media having good **perpendicular magnetic anisotropy** suitable for **perpendicular magnetic recording**. The **magnetic recording** medium includes a tantalum seed layer and a ruthenium underlayer. The **magnetic recording** layer is fabricated from cobalt alloys. With the Ta seed layer, the **perpendicular anisotropy** and c-axis orientation of the **magnetic recording** layer are greatly enhanced. Unity squareness is achievable as is a neg. nucleation field. The **magnetic recording** medium is formed by sputtering the various layers onto a substrate. Thus, a **perpendicular magnetic recording** medium suitable for mass prodn. is provided.

ST layered thin film media **perpendicular magnetic recording**

IT Glass substrates
Lubricants
Magnetic films

Magnetic recording materials

(design of a layered thin-film media for **perpendicular magnetic recording**)

IT Metals, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(**magnetic recording** layer; design of a layered thin-film media for **perpendicular magnetic recording**)

IT Magnetic materials

(soft; design of a layered thin-film media for **perpendicular magnetic recording**)

IT Cobalt alloy, nonbase

RL: TEM (Technical or engineered material use); USES (Uses)
(**magnetic recording** layer; design of a layered thin-film media for **perpendicular magnetic recording**)

IT 12035-46-0, Nickel phosphide (NiP)

RL: TEM (Technical or engineered material use); USES (Uses)
(Al substrate coating; design of a layered thin-film media for **perpendicular magnetic recording**)

IT 11114-92-4 91033-96-4 168041-18-7 518991-80-5 **518991-81-6**
 RL: TEM (Technical or engineered material use); USES (Uses)
 (magnetic recording layer; design of a layered
 thin-film media for **perpendicular magnetic
 recording**)

IT 7440-44-0, Carbon, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (protective layer; design of a layered thin-film media for
perpendicular magnetic recording)

IT 7440-25-7, Tantalum, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (seed layer; design of a layered thin-film media for
perpendicular magnetic recording)

IT 11148-32-6 93511-57-0
 RL: TEM (Technical or engineered material use); USES (Uses)
 (soft magnetic layer; design of a layered thin-film media for
perpendicular magnetic recording)

IT 7429-90-5, Aluminum, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (substrate; design of a layered thin-film media for
perpendicular magnetic recording)

IT 7440-18-8, Ruthenium, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (underlayer; design of a layered thin-film media for
perpendicular magnetic recording)

L7 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2003 ACS on STN
 AN 2003:241841 CAPLUS
 DN 138:247487

TI **Magnetic recording** medium, method of manufacture
 therefor, and magnetic read/write apparatus
 IN Shimizu, Kenji; Sakawaki, Akira; Yang, Hui; Mochizuki, Hiro; Sakai,
 Hiroshi; Hikosaka, Takashi; Oikawa, Soichi
 PA Showa Denko K. K., Japan; Toshiba Corporation
 SO U.S. Pat. Appl. Publ., 21 pp.
 CODEN: USXXCO

DT Patent
 LA English
 IC ICM G11B005-66
 NCL 428694000TM; 428694000R; 428694000TS; 428694000BS
 CC 77-8 (Magnetic Phenomena)
 Section cross-reference(s): 56

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003059651	A1	20030327	US 2002-242446	20020913
	JP 2003091811	A2	20030328	JP 2001-282432	20010917
PRAI	JP 2001-282432	A	20010917		
	US 2001-324532P	P	20010926		

AB A **magnetic recording** medium having excellent magnetic
 read/write characteristics and thermal stability characteristics, and a
 method of manufg. therefor, and a magnetic read/write app. are provided.
 This **magnetic recording** medium comprises an
 orientation control film that controls the orientation of a film provided
 directly above it, a **perpendicular** magnetic film, of which the
 axis of easy magnetization is generally oriented **perpendicular**
 to a substrate, and a protective film, that are provided on a non-magnetic
 substrate, in which the orientation control film is made of a non-magnetic
 material which contains 33-80 at.% of Ni and at least one element selected
 from Sc, Y, Ti, Zr, Hf, Nb and Ta.

ST **magnetic recording** material film

IT Magnetic films

Magnetic recording materials

(magnetic recording medium, method of manuf.

therefor, and magnetic read/write app.)

IT Magnetic materials
(soft; **magnetic recording** medium, method of manuf.
therefor, and magnetic read/write app.)

IT **421550-28-9**, Boron 5, chromium 30, cobalt 65 (atomic)
RL: TEM (Technical or engineered material use); USES (Uses)
(intermediate film; **magnetic recording** medium,
method of manuf. therefor, and magnetic read/write app.)

IT 7440-32-6, Titanium, uses 7440-44-0, Carbon, uses 12683-48-6
53550-38-2, Nickel 50, yttrium 50 (atomic) 55267-07-7, Nickel, zirconium
56293-91-5 56293-97-1 83804-69-7, Nickel 55, niobium 45 (atomic)
90066-56-1, Nickel 65, titanium 35 (atomic) 91791-51-4, Nickel 60,
tantalum 40 (atomic) 99837-27-1, Hafnium 40, nickel 60 (atomic)
110803-39-9, Nickel 75, zirconium 25 (atomic) 148296-10-0 155885-61-3,
Nickel 25, tantalum 75 (atomic) 381242-90-6 412942-25-7, Cobalt 40,
ruthenium 60 (atomic) 501380-58-1 501380-59-2 501380-60-5
501380-61-6 501380-62-7 501380-63-8 501380-64-9 501380-65-0
501380-66-1 501380-67-2 501380-68-3 501380-69-4
RL: TEM (Technical or engineered material use); USES (Uses)
(orientation control film; **magnetic recording**
medium, method of manuf. therefor, and magnetic read/write app.)

IT 11122-26-2 12678-40-9, Aluminum iron oxide 93844-66-7 94470-28-7,
Cobalt 60, ruthenium 40 (atomic) 104193-19-3, Cobalt 89, niobium 7,
zirconium 4 (atomic) 149344-82-1 497946-26-6, Chromium 30, cobalt 65,
platinum 5 (atomic) 497946-27-7, Boron 8, chromium 28, cobalt 54,
platinum 10 (atomic) 497946-28-8, Boron 45, cobalt 55 (atomic)
RL: TEM (Technical or engineered material use); USES (Uses)
(soft undercoat layer; **magnetic recording** medium,
method of manuf. therefor, and magnetic read/write app.)

L7 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2003 ACS on STN

AN 2003:154719 CAPLUS

DN 138:197650

TI **Magnetic recording** medium, its manufacturing method,
and **magnetic recording/reproducing** apparatus

IN Shimizu, Kenji; Sakawaki, Akira; Yang, Hui; Mochizuki, Hiro; Sakai,
Hiroshi; Hikosaka, Takashi; Nakamura, Futoshi

PA Showa Denko K.K., Japan; Toshiba Corporation

SO PCT Int. Appl., 42 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

IC ICM G11B005-65

ICS G11B005-667; G11B005-66; G11B005-738

CC 77-8 (Magnetic Phenomena)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003017258	A1	20030227	WO 2002-JP8321	20020816
	W: SG				
	JP 2003059024	A2	20030228	JP 2001-247825	20010817
	US 2003104250	A1	20030605	US 2002-218570	20020815
PRAI	JP 2001-247825	A	20010817		
	US 2001-314669P	P	20010827		

AB A **magnetic recording** medium comprises an orientation
control film for controlling the orientation of the film right above the
orientation control film, a **vertical** magnetic film where the
easy-magnetizing axis is largely oriented vertically with respect to the
substrate, and a protective film all being formed on a nonmagnetic
substrate, wherein the **vertical** magnetic film is made of a
material contg. Co, Cr, Pt, Cu, the content of the Cr ranges from 16 at.%
to 24 at.%, the content of the Cu ranges from 0.1 at.% to 4 at.%, the
coercive force Hc of the **vertical** magnetic film is 3,000 (Oe) or
greater, the reverse magnetic domain nucleus producing magnetic field

(-Hn) ranges from 0 (Oe) to 2,500 (Oe), the ratio Mr/Ms of the residual magnetization (Mr) to the satd. magnetization (Mr) is >0.85.

ST **magnetic recording** medium reproducing app

IT Magnetic films

Magnetic recording materials

(manuf. of **magnetic recording** media, and magnetic record reproducing app.)

IT Magnetization

(**vertical**; of magnetic films in manuf. of **magnetic recording** media, and magnetic record reproducing app.)

IT 265990-32-7

RL: DEV (Device component use); USES (Uses)

(base film; formation of **vertical** magnetic films in manuf. of **magnetic recording** media, and magnetic record reproducing app.)

IT 497946-13-1, Chromium 22, cobalt 59, copper 2, platinum 17 (atomic)
497946-14-2, Chromium 22, cobalt 60.8, copper 0.2, platinum 17 (atomic)
497946-15-3, Chromium 22, cobalt 58.2, copper 2.8, platinum 17 (atomic)
497946-16-4, Chromium 22, cobalt 57.2, copper 3.8, platinum 17 (atomic)
497946-17-5, Chromium 24, cobalt 55, copper 2, platinum 17 (atomic)
497946-19-7, Chromium 17, cobalt 64, copper 2, platinum 17 (atomic)
497946-20-0, Boron 2, chromium 21, cobalt 58, copper 2, platinum 17 (atomic)
497946-21-1, Boron 3.5, chromium 21, cobalt 56.5, copper 2, platinum 17 (atomic)
497946-22-2, Chromium 21, cobalt 58, copper 2, platinum 17, tantalum 2 (atomic)
497946-23-3, Barium 1, chromium 21, cobalt 58, copper 2, platinum 17, tantalum 1 (atomic)
497946-24-4, Chromium 21, cobalt 63, copper 2, platinum 15 (atomic)
497946-25-5, Chromium 21, cobalt 54, copper 2, platinum 23 (atomic)

RL: DEV (Device component use); USES (Uses)

(formation of **vertical** magnetic films in manuf. of **magnetic recording** media, and magnetic record reproducing app.)

IT 11134-20-6, Cobalt 84, samarium 16 (atomic) 497946-29-9, Chromium 20, cobalt 64, copper 2, platinum 14 (atomic)

RL: DEV (Device component use); USES (Uses)

(hard magnetic film; formation of **vertical** magnetic films in manuf. of **magnetic recording** media, and magnetic record reproducing app.)

IT 94470-28-7, Cobalt 60, ruthenium 40 (atomic) 421550-28-9, Boron 5, chromium 30, cobalt 65 (atomic) 497946-26-6, Chromium 30, cobalt 65, platinum 5 (atomic) 497946-27-7, Boron 8, chromium 28, cobalt 54, platinum 10 (atomic) 497946-28-8, Boron 45, cobalt 55 (atomic)

RL: DEV (Device component use); USES (Uses)

(intermediate film; formation of **vertical** magnetic films in manuf. of **magnetic recording** media, and magnetic record reproducing app.)

IT 7440-05-3, Palladium, uses 7440-18-8, Ruthenium, uses 7440-58-6, Hafnium, uses 11099-25-5 55891-00-4 59124-09-3

RL: DEV (Device component use); USES (Uses)

(orientation control film; formation of **vertical** magnetic films in manuf. of **magnetic recording** media, and magnetic record reproducing app.)

IT 7782-44-7, Oxygen, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidn. of soft magnetic base films and formation of **vertical** magnetic films in manuf. of **magnetic recording** media, and magnetic record reproducing app.)

IT 104193-19-3, Cobalt 89, niobium 7, zirconium 4 (atomic) 497946-30-2, Boron 2, chromium 20, cobalt 63, platinum 15 (atomic)

RL: DEV (Device component use); USES (Uses)

(soft magnetic base film; formation of **vertical** magnetic films in manuf. of **magnetic recording** media, and magnetic record reproducing app.)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Fuji Electric Co Ltd; JP 08-77544 A 1996 CAPLUS
- (2) Fuji Electric Co Ltd; JP 2001167423 A 2001 CAPLUS
- (3) Fujitsu Ltd; JP 06-103554 A 1994
- (4) Fujitsu Ltd; JP 06-180834 A 1994
- (5) Hitachi Metals Ltd; JP 200198360 A 2001
- (6) Intametarikkusu Kabushiki Kaisha Kubota Corp; JP 06-215941 A 1994 CAPLUS
- (7) Kubota Corp; JP 08-31638 A 1996 CAPLUS
- (8) Showa Denko Kabushiki Kaisha; JP 11-283227 A 1999
- (9) Showa Denko Kabushiki Kaisha; JP 2001101643 A 2001 CAPLUS
- (10) Suwa Seikosha Kabushiki Kaisha; JP 59-61012 A 1984 CAPLUS
- (11) Toshiba Corp; JP 06-28652 A 1994

L7 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2003 ACS on STN

AN 2002:927036 CAPLUS

DN 138:10785

TI **Perpendicular magnetic recording** medium, its preparation, and **magnetic recording/reading** apparatus employing same

IN Shimizu, Kenji; Sakawaki, Akira; Sakai, Hiroshi; Nakamura, Futoshi; Hikosaka, Kazushi

PA Showa Denko K. K., Japan; Toshiba Corp.

SO Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G11B005-667

ICS G11B005-65; G11B005-66; G11B005-738; G11B005-851

CC 77-8 (Magnetic Phenomena)

Section cross-reference(s): 56

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002352409	A2	20021206	JP 2001-154449	20010523
	US 2003017370	A1	20030123	US 2002-151896	20020522
PRAI	JP 2001-154449	A	20010523		
	US 2001-295819P	P	20010606		

AB The **magnetic recording** medium comprises, on a nonmagnetic substrate, a soft magnetic undercoat film, a magnetic orientation-controlling film, a **perpendicular** magnetic film, and a protective; wherein an in-plane magnetization undercoat film made of Cr (alloy) and a in-plane hard magnetization film made of a Co-Cr-Pt-X alloy (X = B, Ta, Cu, Zr, Nb, Re, Ni, Mn, ge, Si, O, N) are arranged between the substrate and the soft magnetic undercoat film. The presence of in-plane magnetization undercoat film prevents generation of noises derived from the hard magnetization film.

ST **perpendicular magnetic recording** medium
inplane magnetization undercoat chromium

IT Magnetic materials
(in-plane hard magnetization film; prepn. of **perpendicular magnetic recording** medium contg. in-plane magnetization hard film and in-plane magnetization undercoat film)

IT Magnetic memory devices
(prepn. of **perpendicular magnetic recording** medium contg. in-plane magnetization hard film and in-plane magnetization undercoat film)

IT 476615-96-0, Boron 5, chromium 22, cobalt 61, platinum 12
476615-97-1, Boron 5, chromium 18, cobalt 69, platinum 8
476615-98-2, Chromium 21, cobalt 66, platinum 10, tantalum 3
476615-99-3, Boron 3, chromium 20, cobalt 66, copper 3, platinum 8
476616-00-9, Chromium 14, cobalt 76, platinum 8, tantalum 2 476616-01-0, Chromium 10, cobalt 78, platinum 10, tantalum 2 476616-02-1, Boron 4, chromium 25, cobalt 59, platinum 12 476616-03-2, Boron 4, chromium 24, cobalt 59, platinum 13

RL: TEM (Technical or engineered material use); USES (Uses)
(in-plane hard magnetization film; prepn. of **perpendicular**
magnetic recording medium contg. in-plane
magnetization hard film and in-plane magnetization undercoat film)
IT 7440-47-3, Chromium, uses 265990-32-7, Chromium 94, molybdenum 6
(atomic)

RL: TEM (Technical or engineered material use); USES (Uses)
(in-plane magnetization undercoat film; prepn. of **perpendicular**
magnetic recording medium contg. in-plane
magnetization hard film and in-plane magnetization undercoat film)

L7 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2003 ACS on STN

AN 2002:833344 CAPLUS

DN 137:332330

TI **Magnetic recording** medium, method of manufacture
therefor, and apparatus for magnetic reproducing and reproducing
recordings

IN Shimizu, Kenji; Sakawaki, Akira; Sakai, Hiroshi; Hikosaka, Takashi;
Oikawa, Soichi

PA Showa Denko K.K., Kabushiki Kaisha Toshiba, Japan

SO U.S. Pat. Appl. Publ., 14 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM G11B005-66

NCL 428694000TM

CC 77-8 (Magnetic Phenomena)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002160232	A1	20021031	US 2002-82201	20020226
	JP 2002358615	A2	20021213	JP 2002-55042	20020228
PRAI	JP 2001-55950	A	20010228		
	US 2001-275102P	P	20010313		

AB A **magnetic recording** medium comprising: on a
nonmagnetic substrate, at least a soft magnetic undercoat film comprising
a soft magnetic material; an orientation control film for controlling an
orientation of a film directly above; a **perpendicular** magnetic
film in which an axis of easy magnetization is oriented mainly
perpendicularly with respect to the substrate; and a protection film,
wherein the **perpendicular** magnetic film has a structure in which
a large no. of magnetic grains are sepd. by a grain boundary layer, and an
av. sepg. distance between the magnetic grains along a straight line which
connects centers of gravity of mutually neighboring magnetic grains is 1
nm or greater.

ST **perpendicular** recording film easy magnetization axis orientation
control

IT Coercive force (magnetic)

Grain boundaries

Magnetic recording materials

Magnetization

(orientation control of **magnetic recording** medium
for **perpendicular** recording with easy magnetization axis and
grain boundary layer)

IT **Magnetic recording**

(**perpendicular**; orientation control of **magnetic**
recording medium for **perpendicular** recording with
easy magnetization axis and grain boundary layer)

IT 7440-47-3P, Chromium, properties 7440-48-4P, Cobalt, properties

RL: DEV (Device component use); PNU (Preparation, unclassified); PRP
(Properties); TEM (Technical or engineered material use); PREP
(Preparation); USES (Uses)

(grain boundary; orientation control of **magnetic**
recording medium for **perpendicular** recording with

easy magnetization axis and grain boundary layer)

IT 473740-47-5P, Chromium 35, cobalt 57, platinum 8 (atomic) 473740-48-6P,
Chromium 35, cobalt 51, molybdenum 6, platinum 8 (atomic) 473740-49-7P,
Chromium 36, cobalt 51, platinum 8, vanadium 5 (atomic) 473740-50-0P,
Chromium 34, cobalt 51, copper 7, platinum 8 (atomic) 473740-51-1P,
Chromium 35, cobalt 52, platinum 8, tungsten 5 (atomic) 473740-52-2P,
Chromium 37, cobalt 48, platinum 6, rhenium 9 (atomic) 473740-53-3P,
Chromium 36, cobalt 53, platinum 7, zirconium 4 (atomic) 473740-54-4P,
Chromium 29, cobalt 60, platinum 7, zirconium 4 (atomic) 473740-55-5P,
Chromium 43, cobalt 48, platinum 5, zirconium 4 (atomic) 473740-56-6P,
Chromium 47, cobalt 44, platinum 5, zirconium 4 (atomic) 473740-57-7P,
Chromium 35, cobalt 51, platinum 8, tantalum 6 (atomic) 473740-58-8P,
Chromium 35, cobalt 53, platinum 8, ruthenium 4 (atomic)
473740-59-9P, Boron 7, chromium 37, cobalt 53, platinum 3 (atomic)
473740-60-2P, Boron 7, chromium 37, cobalt 51, platinum 5 (atomic)
473740-61-3P, Boron 7, chromium 37, cobalt 48, platinum 8 (atomic)
473740-62-4P, Boron 7, chromium 37, cobalt 42, platinum 14 (atomic)
473740-63-5P, Boron 7, chromium 37, cobalt 38, platinum 18 (atomic)
473740-64-6P, Chromium 37, cobalt 50, hafnium 5, platinum 8 (atomic)
RL: DEV (Device component use); PNU (Preparation, unclassified); PRP
(Properties); TEM (Technical or engineered material use); PREP
(Preparation); USES (Uses)

(non-magnetic intermediate; orientation control of magnetic

recording medium for perpendicular recording with

easy magnetization axis and grain boundary layer)

IT 146241-23-8P, Chromium 18, cobalt 70, platinum 12 (atomic) 473740-19-1P,
Chromium 20, cobalt 65, platinum 15 (atomic) 473740-20-4P, Chromium 12,
cobalt 73, platinum 15 (atomic) 473740-21-5P, Chromium 24, cobalt 58,
platinum 18 (atomic) 473740-22-6P, Chromium 20, cobalt 60, molybdenum 5,
platinum 15 (atomic) 473740-23-7P, Chromium 20, cobalt 57, platinum 15,
vanadium 8 (atomic) 473740-24-8P, Chromium 20, cobalt 61, copper 4,
platinum 15 (atomic) 473740-25-9P, Chromium 20, cobalt 55, platinum 15,
tungsten 10 (atomic) 473740-26-0P, Chromium 20, cobalt 58, platinum 15,
rhenium 7 (atomic) 473740-27-1P, Chromium 20, cobalt 62, platinum 15,
zirconium 3 (atomic) 473740-28-2P, Boron 6, chromium 20, cobalt 59,
platinum 15 (atomic) 473740-29-3P, Chromium 20, cobalt 61, platinum 15,
tantalum 4 (atomic) 473740-30-6P, Chromium 20, cobalt 53, platinum 15,
ruthenium 12 (atomic) 473740-31-7P, Chromium 20, cobalt 59, hafnium 6,
platinum 15 (atomic) 473740-32-8P, Chromium 18, cobalt 69, copper 1,
platinum 12 (atomic) 473740-33-9P, Chromium 18, cobalt 67, copper 3,
platinum 12 (atomic) 473740-34-0P, Chromium 18, cobalt 64, copper 6,
platinum 12 (atomic) 473740-35-1P, Chromium 18, cobalt 60, copper 10,
platinum 12 (atomic) 473740-36-2P, Chromium 18, cobalt 56, copper 14,
platinum 12 (atomic) 473740-37-3P, Chromium 18, cobalt 53, copper 17,
platinum 12 (atomic) 473740-38-4P, Chromium 18, cobalt 50, copper 20,
platinum 12 (atomic) 473740-39-5P, Chromium 18, cobalt 68, copper 6,
platinum 8 (atomic) 473740-40-8P, Chromium 18, cobalt 56, copper 6,
platinum 20 (atomic) 473740-41-9P, Chromium 18, cobalt 53, copper 6,
platinum 23 (atomic) 473740-42-0P, Chromium 10, cobalt 72, copper 6,
platinum 12 (atomic) 473740-43-1P, Chromium 14, cobalt 68, copper 6,
platinum 12 (atomic) 473740-44-2P, Chromium 26, cobalt 56, copper 6,
platinum 12 (atomic) 473740-45-3P, Chromium 30, cobalt 52, copper 6,
platinum 12 (atomic) 473740-46-4P, Chromium 30, cobalt 48, copper 10,
platinum 12 (atomic)

RL: DEV (Device component use); PNU (Preparation, unclassified); PRP
(Properties); TEM (Technical or engineered material use); PREP
(Preparation); USES (Uses)

(perpendicular layer; orientation control of magnetic

recording medium for perpendicular recording with

easy magnetization axis and grain boundary layer)

L7 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:486347 CAPLUS
DN 137:56379

TI **Magnetic recording medium and its use in
magnetic recording apparatus**
 IN Okijima, Makoto
 PA Mitsubishi Chemical Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM G11B005-673
 ICS H01F010-16; H01F010-30
 CC 77-8 (Magnetic Phenomena)
 Section cross-reference(s): 56

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002183928	A2	20020628	JP 2000-378224	20001213
PRAI	JP 2000-378224		20001213		

AB The medium has a nonmagnetic substrate and multilayer magnetic films in which (1) Co alloy layers and (2) Pt or Pd-based layers are alternately laminated to satisfy defined decline at $M = 0$ in M-H curve showing magnetic characteristics in **vertical** direction to the multilayer films. The medium has high coercive force and S/N ratio and gives app. with high d. and low noise.

ST **magnetic recording** medium multilayer film cobalt alloy; platinum multilayer film **magnetic recording** medium; palladium multilayer film **magnetic recording** medium

IT Magnetic memory devices

Magnetic recording materials
 (magnetic recording medium with multilayer films and its use in **magnetic recording** app.)

IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 96698-73-6
 438566-65-5, Boron 9, chromium 15, cobalt 76 (atomic)

RL: TEM (Technical or engineered material use); USES (Uses)
 (film; **magnetic recording** medium with multilayer films and its use in **magnetic recording** app.)

=> d hist

L9 ANSWER 1 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN
 AN 2003:433030 CAPLUS
 DN 139:16452
 TI **Magnetic recording medium and magnetic recording apparatus using it**
 IN Kamibe, Tetsuya; Yaku, Hiroo; Suzuki, Hiroyuki; Kashiwase, Eiichi
 PA Hitachi Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM G11B005-738
 ICS G11B005-64; G11B005-65; G11B005-66
 CC 77-8 (Magnetic Phenomena)
 Section cross-reference(s): 56

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003162813	A2	20030606	JP 2001-361909	20011128
	US 2003138665	A1	20030724	US 2002-306361	20021127
PRAI	JP 2001-361909	A	20011128		

AB The recording medium has (1) a multilayered underlayer including a layer of a Cr alloy contg. 2-12 at.% B and having body-centered cubic structure, (2) a lower magnetic layer of a Co alloy contg. 10-16 at.% Cr having thickness 1.5-4.5 nm, (3) a nonmagnetic middle layer, and (4) a Co-based upper magnetic layer having antiferromagnetic coupling with the lower magnetic layer, which are formed in this order on a nonmagnetic substrate. The lower magnetic layer may contain .ltoreq.10 at.% Pt. The recording medium has high medium S/N, thermal stability, and in-plane recording d. (.gtoreq.50 Mbit/mm²). Also claimed is a **magnetic recording app.** equipped with the recording medium and a composite magnetic head having an electromagnetic induction-type recording head and a spin valve-type reproducing head.

ST **magnetic recording medium** low noise thermal stability;
 composite head **magnetic recording app**

IT Magnetic disks
 Magnetic memory devices
 (**magnetic recording medium** with high medium S/N, thermal stability, and in-plane recording d. and **magnetic recording app.** using it)

IT 85424-54-0, Chromium 14, cobalt 86 (atomic) 129516-30-9, Chromium 12, cobalt 82, platinum 6 (atomic) 129617-87-4, Chromium 16, cobalt 80, platinum 4 (atomic) 174528-04-2, Chromium 14, cobalt 82, platinum 4 (atomic) 202754-39-0, Chromium 14, cobalt 78, platinum 8 (atomic) 443913-81-3, Chromium 16, cobalt 76, platinum 8 (atomic) 534600-36-7, Chromium 14, cobalt 76, platinum 10 (atomic) 534600-37-8, Chromium 14, cobalt 80, platinum 6 (atomic) 534600-38-9, Chromium 10, cobalt 88, platinum 2 (atomic) 534600-39-0, Chromium 12, cobalt 84, platinum 4 (atomic) 534600-40-3, Boron 5, chromium 14, cobalt 81 (atomic) 534600-41-4, Boron 10, chromium 13.5, cobalt 76.5 (atomic) 534600-42-5, Boron 6, chromium 12, cobalt 78, platinum 4 (atomic) 534600-43-6, Chromium 14, cobalt 81, ruthenium 5 (atomic) 534600-44-7, Boron 3, chromium 14, cobalt 78, ruthenium 5 (atomic) 534600-45-8, Chromium 13, cobalt 79, rhenium 8 (atomic) 534600-46-9, Boron 4, chromium 13, cobalt 75, rhenium 8 (atomic) 534600-47-0, Chromium 10-16, cobalt bal. (atomic) 534600-48-1

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(lower magnetic layer; **magnetic recording medium** with high medium S/N, thermal stability, and in-plane recording d. and **magnetic recording app.** using it)

IT 7440-18-8, Ruthenium, uses
 RL: DEV (Device component use); TEM (Technical or engineered material

use); USES (Uses)

(nonmagnetic middle layer; **magnetic recording**

medium with high medium S/N, thermal stability, and in-plane recording d. and **magnetic recording** app. using it)

IT 7440-47-3, Chromium, uses 12780-63-1, Aluminum 50, nickel 50 (atomic)
59913-35-8, Nickel 50, niobium 50 (atomic) 91791-51-4, Nickel 60,
tantalum 40 (atomic) 94470-28-7, Cobalt 60, ruthenium 40 (atomic)
147856-89-1, Chromium 36, cobalt 64 (atomic) 207224-38-2, Boron 5,
chromium 80, titanium 15 (atomic) 447414-43-9, Boron 3, chromium 77,
titanium 20 (atomic) 534600-49-2, Boron 7, chromium 83, tungsten 10
(atomic) 534600-50-5, Boron 3, chromium 77, molybdenum 10, titanium 10
(atomic) 534600-51-6, Boron 83, chromium 15, titanium 2 (atomic)
534600-52-7, Boron 83, chromium 10, titanium 7 (atomic) 534600-53-8,
Boron 80.5, chromium 7.5, titanium 12 (atomic) 534600-54-9, Boron 2-12,
chromium 88-98 (atomic)

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(underlayer; **magnetic recording** medium with high

medium S/N, thermal stability, and in-plane recording d. and **magnetic recording** app. using it)

IT 412942-37-1, Boron 8, chromium 18, cobalt bal., platinum 14 (atomic)
473710-96-2, Boron 8, chromium 18, cobalt bal., platinum 12 (atomic)
502084-07-3, Boron 6, chromium 18, cobalt 60, copper 2, platinum 14
(atomic) 534600-55-0, Boron 6, chromium 16, cobalt 66, copper 2,
platinum 10 (atomic)

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(upper magnetic layer; **magnetic recording** medium

with high medium S/N, thermal stability, and in-plane recording d. and **magnetic recording** app. using it)

L9 ANSWER 2 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN

AN 2002:539349 CAPLUS

DN 137:102834

TI **Magnetic recording** media, their manufacturing method
and apparatus, and magnetic record players

IN Sakawaki, Akira; Kokubu, Makoto; Sakai, Hiroshi

PA Showa Denko K. K., Japan

SO Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G11B005-738

ICS G11B005-64; G11B005-65; G11B005-851; H01F010-13; H01F010-16;
H01F010-30; H01F041-14

CC 77-8 (Magnetic Phenomena)

Section cross-reference(s): 75

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002203312	A2	20020719	JP 2001-260383	20010829
PRAI	JP 2000-259871	A	20000829		
	JP 2000-335021	A	20001101		

AB **Magnetic recording** media contain: nonmetal substrates;
nonmagnetic base films having bcc structure; orientation adjustment films
between the substrates and the base films, which have columnar fine
crystal grains inclined in radial direction, and orient the base film in
(2 0 0) plane; and magnetic films which have hcp structure and are
oriented in (1 0 0) plane. Coercive force ratio H_{cc}/H_{cr} is >1 , where the
 H_{cc} and H_{cr} are coercive force in, resp., circumferential and radial
direction. The **magnetic recording** media have
excellent magnetic characteristic and can be manufd. with ease. Manufg.
method and app. of the **magnetic recording** media, as
well as magnetic record players are also described.

ST **magnetic recording** media manufg app; player magnetic
record coercive force

IT Coercive force (magnetic)
Crystal orientation
(in **magnetic recording** media, their manufg. method
and app., and magnetic record players)

IT **Magnetic recording** materials
(**magnetic recording** media, their manufg. method and
app., and magnetic record players)

IT 7439-98-7, Molybdenum, uses 7440-03-1, Niobium, uses 7440-25-7,
Tantalum, uses 7440-33-7, Tungsten, uses 7440-47-3, Chromium, uses
7440-62-2, Vanadium, uses 11146-56-8, Nickel 75, phosphorus 25 (atomic)
12639-53-1, Aluminum 50, cobalt 50 (atomic) 12707-14-1, Aluminum 50,
iron 50 (atomic) 12778-98-2, Palladium 80, silicon 20 (atomic)
12780-63-1, Aluminum 50, nickel 50 (atomic) 37219-42-4, Iron 50, niobium
50 (atomic) 37270-13-6, Nickel 80, phosphorus 20 (atomic) 37373-03-8,
Chromium 80, molybdenum 20 (atomic) 54801-24-0, Chromium 64, titanium 36
(atomic) 56273-68-8, Copper 57, zirconium 43 (atomic) 59913-25-6,
Nickel 50, tantalum 50 (atomic) 59913-35-8, Nickel 50, niobium 50
(atomic) 61590-11-2, Copper 50, titanium 50 (atomic) 73530-96-8,
Nickel 70, tantalum 30 (atomic) 77506-62-8, Cobalt 50, tantalum 50
(atomic) 77840-99-4, Chromium 45, titanium 55 (atomic) 78391-77-2,
Nickel 75, niobium 25 (atomic) 85423-64-9, Aluminum 15, chromium 85
(atomic) 86313-96-4, Carbon 5, chromium 95 (atomic) 87646-30-8,
Aluminum 67, yttrium 33 (atomic) 103299-67-8, Cobalt 70, niobium 30
(atomic) 106642-90-4, Cobalt 80, zirconium 20 (atomic) 110431-79-3,
Chromium 70, titanium 30 (atomic) 111894-30-5, Nickel 67, phosphorus 33
(atomic) 122844-03-5, Chromium 90, ruthenium 10 (atomic) 124798-72-7,
Chromium 85, vanadium 15 (atomic) 124849-54-3, Cobalt 75, niobium 25
(atomic) 130499-76-2, Chromium 90, oxygen 10 (atomic) 134737-83-0,
Nickel 35, tantalum 65 (atomic) 142812-82-6, Chromium 70, niobium 30
(atomic) 150137-07-8, Boron 20, chromium 30, cobalt 50 (atomic)
150565-07-4, Boron 10, chromium 90 (atomic) 166522-12-9, Chromium 80,
tungsten 20 (atomic) 174321-15-4, Chromium 85, titanium 15 (atomic)
180272-93-9, Chromium 60, niobium 40 (atomic) 182559-96-2, Chromium 90,
nitrogen 10 (atomic) 207224-28-0, Chromium 30, cobalt 60, zirconium 10
(atomic) 241826-25-5, Chromium 90, tantalum 10 (atomic) 251540-83-7,
Chromium 80, niobium 20 (atomic) 356056-98-9, Chromium 85, niobium 15
(atomic) 414904-33-9, Cobalt 65, tantalum 35 (atomic) 414904-34-0,
Carbon 18, chromium 26, cobalt 56 (atomic) 414904-35-1, Chromium 65,
tantalum 35 (atomic) 414904-36-2, Cobalt 72, tantalum 28 (atomic)
442551-39-5, Hafnium 34, tungsten 66 (atomic)
RL: DEV (Device component use); USES (Uses)
(orientation adjustment films in **magnetic recording**
media, their manufg. method and app., and magnetic record players)

L9 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN

AN 2002:345865 CAPLUS

DN 136:362831

TI **Magnetic recording** medium for high density recording

IN Futamoto, Masaaki; Inaba, Nobuyuki; Hirayama, Yoshiyuki; Takeuchi,
Teruaki; Honda, Yukio

PA Hitachi Ltd., Japan

SO U.S., 20 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM G11B005-66

ICS G11B005-70

NCL 428694000TS

CC 77-8 (Magnetic Phenomena)

Section cross-reference(s): 56

FAN.CNT 2

PATENT NO.

KIND DATE

APPLICATION NO. DATE

PI	US 6383667	B1	20020507	US 1999-413813	19991007
	JP 3075712	B2	20000814	JP 1998-288134	19981009
	JP 2000251237	A2	20000914	JP 1999-45884	19990224
	JP 3157806	B2	20010416		
	US 2002068199	A1	20020606	US 2001-1995	20011205
	US 6541125	B2	20030401		
PRAI	JP 1998-288134	A	19981009		
	JP 1999-45884	A	19990224		
	US 1999-413813	A1	19991007		

AB The present invention relates to a **magnetic recording** medium that has a magnetic film suitable for high-d. **magnetic recording**. The **magnetic recording** medium includes a substrate, an underlayer provided on the substrate, a Co alloy magnetic film formed through the underlayer, and a protective film for protecting the magnetic film, in which the underlayer has a 2-layer structure of an lower underlayer contacted with the substrate and an upper underlayer contacted with the Co alloy magnetic film, the upper underlayer is a Co-Crx-My alloy film having a hcp. structure, where 25 at.% .ltoreq. x+y .ltoreq. 50 at.%, 0.5 at.% .ltoreq. y, and non-magnetic element M is selected from the group of elements B, Si, Ge, C, Al, P, Ti, V, Nb, Zr, Hf, Mn, Rh, Os, Ir, Re, Pd, Pt, Mo, Ta, W, Ag and Au. Thereby the medium can be increased in its coercive force and can be improved in its thermal stability characteristics.

ST chromium cobalt alloy **magnetic recording** medium

IT Coercive force (magnetic)

Thermal stability
(improvement of; **magnetic recording** medium for high d. recording)

IT Magnetic films
Magnetic recording materials
(**magnetic recording** medium for high d. recording)

IT 1314-23-4, Zirconia, uses 7440-03-1, Niobium, uses 7440-21-3, Silicon, uses 7440-32-6, Titanium, uses 7440-47-3, Chromium, uses 7440-58-6, Hafnium, uses 7440-67-7, Zirconium, uses 7631-86-9, Silica, uses 12381-52-1, Chromium silicide (CrSi3) 12797-58-9
RL: TEM (Technical or engineered material use); USES (Uses)
(adhesion layer; **magnetic recording** medium for high d. recording)

IT 197803-58-0 421550-46-1 421550-47-2 421550-48-3
421550-49-4 421550-50-7 421550-51-8 421550-52-9 421550-53-0
421550-54-1 421550-55-2 421550-56-3 421550-57-4 421550-58-5
421550-61-0 421550-64-3 421550-67-6 421550-68-7 421550-69-8
421550-70-1
RL: TEM (Technical or engineered material use); USES (Uses)
(film material; **magnetic recording** medium for high d. recording)

IT 1309-48-4, Magnesium oxide (MgO), uses 7789-24-4, Lithium fluoride (LiF), uses 11114-55-9 11114-60-6 11114-68-4 11143-56-9
11147-86-7 12682-24-5 39286-82-3 39314-47-1 39460-27-0
51614-60-9 59124-11-7 77592-17-7, Cobalt 50, ruthenium 50 (atomic)
94470-28-7, Cobalt 60, ruthenium 40 (atomic) 147099-05-6, Cobalt 90, ruthenium 10 (atomic) 153084-87-8 160619-62-5, Cobalt 80, ruthenium 20 (atomic) 273379-93-4, Cobalt 65, ruthenium 35 (atomic) 341036-30-4
366476-02-0 412942-25-7 421550-72-3 421550-73-4 421550-74-5
421550-75-6 421550-76-7 421550-77-8 421550-78-9 421550-79-0
421550-80-3 421550-81-4 421550-82-5 421550-83-6 421550-84-7
421550-85-8 421550-86-9 421550-87-0 421550-88-1 421550-89-2
421550-90-5
RL: TEM (Technical or engineered material use); USES (Uses)
(lower underlayer; **magnetic recording** medium for high d. recording)

IT 96439-26-8 213332-70-8, Chromium 30, cobalt 66, titanium 4 (atomic)
323187-06-0, Chromium 30, cobalt 60, manganese 10 (atomic)

421550-28-9 421550-29-0 421550-30-3 421550-31-4
421550-32-5 421550-33-6 421550-34-7 421550-35-8 421550-36-9
421550-37-0 421550-39-2 421550-40-5 421550-41-6 421550-42-7
421550-43-8 421550-44-9 421550-45-0

RL: TEM (Technical or engineered material use); USES (Uses)

(**magnetic recording** medium for high d. recording)

IT 294626-73-6, Boron 6, chromium 25, cobalt 69 (atomic)
294626-75-8, Chromium 25, cobalt 67, silicon 8 (atomic) 294626-77-0,
Chromium 25, cobalt 65, germanium 10 (atomic) 294626-79-2, Aluminum 4,
chromium 25, cobalt 71 (atomic) 294626-81-6, Chromium 25, cobalt 69,
phosphorus 6 (atomic) 294626-83-8, Chromium 25, cobalt 69, titanium 6
(atomic) 294626-85-0, Chromium 25, cobalt 65, vanadium 10 (atomic)
294626-87-2, Chromium 25, cobalt 71, zirconium 4 (atomic) 294626-89-4,
Chromium 25, cobalt 67, niobium 8 (atomic) 294626-91-8, Chromium 25,
cobalt 69, hafnium 6 (atomic) 294626-93-0, Chromium 25, cobalt 65,
manganese 10 (atomic) 294626-95-2, Chromium 25, cobalt 63, rhodium 12
(atomic) 294626-97-4, Chromium 25, cobalt 57, iridium 18 (atomic)
294626-99-6, Chromium 25, cobalt 61, rhenium 14 (atomic) 294627-01-3,
Chromium 25, cobalt 67, palladium 8 (atomic) 294627-03-5, Chromium 25,
cobalt 69, platinum 6 (atomic) 294627-05-7, Chromium 25, cobalt 71,
molybdenum 4 (atomic) 294627-07-9, Chromium 25, cobalt 67, tungsten 8
(atomic) 294627-09-1, Chromium 25, cobalt 71, silver 4 (atomic)
294627-11-5, Chromium 25, cobalt 69, gold 6 (atomic)

RL: TEM (Technical or engineered material use); USES (Uses)

(upper underlayer; **magnetic recording** medium for
high d. recording)

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; JP 04321919 1992
- (2) Anon; JP 07057233 1995 CAPLUS
- (3) Anon; JP 10233016 1998 CAPLUS
- (4) Anon; JP 10334444 1998 CAPLUS
- (5) Honda; US 5851643 A 1998 CAPLUS
- (6) Inaba, N; Journal of Applied Physics 1996, V79(8), P5354 CAPLUS
- (7) Kitakami; US 5543221 A 1996
- (8) Lal; US 5849386 A 1998 CAPLUS
- (9) Laughlin, D; Journal of Magnetism and Magnetic Materials 1996, V155, P146
CAPLUS
- (10) Lee; US 5800931 A 1998 CAPLUS
- (11) Lu; US 5820963 A 1998 CAPLUS
- (12) Tanahashi; US 6001447 A 1999 CAPLUS

L9 ANSWER 4 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN

AN 2002:315388 CAPLUS

DN 136:334115

TI **Magnetic recording** medium, process and apparatus for
producing the same, and **magnetic recording** and
reproducing apparatus

IN Sakawaki, Akira; Kokubu, Masato; Sakai, Hiroshi

PA Show A Denko K.K., Japan

SO U.S. Pat. Appl. Publ., 24 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM G11B005-66

NCL 428694000TS

CC 77-8 (Magnetic Phenomena)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002048695	A1	20020425	US 2001-940853	20010829
PRAI	JP 2000-202158	A	20000829		
	US 2001-304745P	P	20010713		

AB The present invention relates to a **magnetic recording**

medium used in an app. such as a magnetic disk app.; a process and an app. for producing the **magnetic recording** medium; and a **magnetic recording** and reproducing app. incorporating the **magnetic recording** medium. A **magnetic recording** medium is presented which exhibits excellent magnetic characteristics and which can be easily produced. A **magnetic recording** medium contg. a non-metallic substrate, a non-magnetic undercoat film, a Co alloy hexagonal closed packed (hcp.) (110) textured magnetic film, and a protective film formed on the substrate. An orientation-detg. film, which detg. the crystal orientation of an undercoat film provided directly thereon to cause the texture of the undercoat film to be (200), is formed between the substrate and the undercoat film. The orientation-detg. film has a crystal structure such that columnar fine crystal grains are inclined in a radial direction of the substrate, and the ratio of a coercive force in a circumferential direction of the medium (Hcc) to a coercive force in a radial direction of the medium (Hcr); i.e., Hcc/Hcr, is >1.

ST **magnetic recording** material disk app

IT Magnetic disks

Magnetic films

Magnetic recording materials

(materials and app. for **magnetic recording** disks)

IT Chromium alloy, base

Cobalt alloy, base

Molybdenum alloy, base

Niobium alloy, base

Tantalum alloy, base

Tungsten alloy, base

Vanadium alloy, base

RL: TEM (Technical or engineered material use); USES (Uses)

(materials and app. for **magnetic recording** disks)

IT 7439-98-7, Molybdenum, uses 7440-03-1, Niobium, uses 7440-25-7, Tantalum, uses 7440-33-7, Tungsten, uses 7440-47-3, Chromium, uses 7440-62-2, Vanadium, uses 11114-55-9 11114-60-6 11114-68-4 11146-56-8, Nickel 75, phosphorus 25 (atomic) 12035-64-2, Nickel phosphide (Ni₂P) 12639-53-1, Aluminum 50, cobalt 50 (atomic) 12707-14-1, Aluminum 50, iron 50 (atomic) 12778-98-2, Palladium 80, silicon 20 (atomic) 12780-63-1, Aluminum 50, nickel 50 (atomic) 32582-73-3 37219-42-4, Iron 50, niobium 50 (atomic) 37270-13-6, Nickel 80, phosphorus 20 (atomic) 37373-03-8, Chromium 80, molybdenum 20 (atomic) 54801-24-0, Chromium 64, titanium 36 (atomic) 55891-00-4 56273-68-8, Copper 57, zirconium 43 (atomic) 59913-25-6, Nickel 50, tantalum 50 (atomic) 59913-35-8, Nickel 50, niobium 50 (atomic) 60087-21-0 61590-11-2, Copper 50, titanium 50 (atomic) 68394-23-0 73530-96-8, Nickel 70, tantalum 30 (atomic) 77506-62-8, Cobalt 50, tantalum 50 (atomic) 77840-99-4 78391-77-2, Nickel 75, niobium 25 (atomic) 79007-63-9, Cobalt 67, zirconium 33 (atomic) 85423-64-9, Aluminum 15, chromium 85 (atomic) 86313-96-4, Carbon 5, chromium 95 (atomic) 87646-30-8, Aluminum 67, yttrium 33 (atomic) 103299-67-8, Cobalt 70, niobium 30 (atomic) 106642-90-4, Cobalt 80, zirconium 20 (atomic) 110431-79-3, Chromium 70, titanium 30 (atomic) 122844-03-5, Chromium 90, ruthenium 10 (atomic) 124798-72-7, Chromium 85, vanadium 15 (atomic) 124849-54-3, Cobalt 75, niobium 25 (atomic) 134737-83-0, Nickel 35, tantalum 65 (atomic) 142812-82-6, Chromium 70, niobium 30 (atomic) 150137-07-8, Boron 20, chromium 30, cobalt 50 (atomic) 150565-07-4 166522-12-9, Chromium 80, tungsten 20 (atomic) 174321-15-4, Chromium 85, titanium 15 (atomic) 180272-93-9 182559-96-2 207224-28-0, Chromium 30, cobalt 60, zirconium 10 (atomic) 241826-25-5, Chromium 90, tantalum 10 (atomic) 251540-83-7, Chromium 80, niobium 20 (atomic) 414904-33-9 414904-34-0 414904-35-1 414904-36-2

RL: TEM (Technical or engineered material use); USES (Uses)

(materials and app. for **magnetic recording** disks)

AN 2002:281325 CAPLUS
 DN 137:40593
 TI Thermodynamic calculations of the effect of B and Ta on magnetically induced phase separation in Co-Cr-Pt alloys
 AU Oikawa, K.; Qin, G. W.; Okamoto, S.; Kitakami, O.; Shimada, Y.; Fukamichi, K.; Ishida, K.
 CS National Institute of Advanced Industrial Science and Technology, Sendai, 983-8551, Japan
 SO Applied Physics Letters (2002), 80(15), 2704-2706
 CODEN: APPLAB; ISSN: 0003-6951
 PB American Institute of Physics
 DT Journal
 LA English
 CC 77-1 (Magnetic Phenomena)
 Section cross-reference(s): 56
 AB To clarify the relation between the magnetically induced phase sepn. and the recording media characteristics, the thermodyn. calcns. of Co-Cr-Pt-B and Co-Cr-Pt-Ta systems were carried out by the available binary assessment data and Miedema's semiempirical values. B is segregated to the boundary in a similar manner as Cr, which makes the boundary region paramagnetic. This result is consistent with available data that B weakens the intergranular magnetic coupling and increases the magnetic anisotropy in Co-Cr-Pt recording media. By adding Ta, the Cr content in the paramagnetic phase is also increased, reducing the intergranular magnetic coupling. However, the Ta content in the ferromagnetic phase is higher than in the paramagnetic phase, decreasing the magnetic anisotropy. Accordingly, the thermodyn. calcns. successfully explain exptl. magnetic data for Co-Cr-Pt-B and Co-Cr-Pt-Ta recording media.
 ST chromium cobalt platinum boron **magnetic recording** medium phase sepn; tantalum chromium cobalt platinum **magnetic recording** medium phase sepn
 IT Ferromagnetic materials
 Magnetic field effects
Magnetic recording materials
 Paramagnetic materials
 Phase separation
 (thermodyn. calcns. of the effect of B and Ta on magnetically induced phase sepn. in Co-Cr-Pt **magnetic recording** media)
 IT 436868-27-8 **436868-28-9 436868-29-0**
436868-30-3 436868-31-4 436868-32-5 436868-33-6
 436868-34-7
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (thermodyn. calcns. of the effect of B and Ta on magnetically induced phase sepn. in Co-Cr-Pt **magnetic recording** media)
 RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
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 (2) Doerner, M; IEEE Trans Magn 2001, V37, P1502
 (3) Dupin, N; J Phase Equilib 1993, V14, P451 CAPLUS
 (4) Hasebe, M; J Jpn Inst Met 1982, V46, P577 CAPLUS
 (5) Hillert, M; CALPHAD: Comput Coupling Phase Diagrams Thermochem 1978, V2, P227 CAPLUS
 (6) Hirayama, Y; IEEE Trans Magn 1996, V32, P3807 CAPLUS
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 (10) Iwasaki, S; IEEE Trans Magn 1978, V14, P849
 (11) Iwase, T; Jpn J Appl Phys, Part 1 1993, V32, P3823
 (12) Kitakami, O; J Magn Magn Mater 1999, V202, P305 CAPLUS
 (13) Kubota, Y; J Appl Phys 1998, V84, P6202 CAPLUS
 (14) Lee, I; Thin Solid Films 2001, V388, P245 CAPLUS
 (15) Liu, Z; CALPHAD: Comput Coupling Phase Diagrams Thermochem 1999, V23, P339

CAPLUS

- (16) Oikawa, K; Acta Mater (in press)
 (17) Oikawa, K; Appl Phys Lett 2001, V79, P644 CAPLUS
 (18) Oikawa, K; J Magn Magn Mater 2001, V236, P220 CAPLUS
 (19) Oikawa, K; J Magn Magn Mater 2002, V239, P409 CAPLUS
 (20) Oikawa, K; J Magn Soc Jpn 2001, V25, P478 CAPLUS
 (21) Paik, C; IEEE Trans Magn 1992, V28, P3084 CAPLUS
 (22) Qin, G; J Magn Magn Mater 2001, V234, PL1 CAPLUS
 (23) Redlich, O; Ind Eng Chem 1948, V40, P345
 (24) Sanchez, J; Phys Rev B 1978, V17, P2926
 (25) Sundman, B; CALPHAD: Comput Coupling Phase Diagrams Thermochem 1985, V9, P153 CAPLUS
 (26) Weller, D; Annu Rev Mater Sci 2000, V30, P611 CAPLUS

L9 ANSWER 6 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN

AN 2001:91421 CAPLUS

DN 134:140818

TI Magnetic Co-Cr-Pt-B alloys in layered structure suitable for magnetic data storage on hard disks

IN Margulies, David Thomas; Marinero, Ernesto Esteban; Rosen, Hal Jervis; Rubin, Kurt Alan; York, Brian Rodrick

PA International Business Machines Corporation, USA

SO U.S., 11 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM G11B005-66

NCL 428065300

CC 77-4 (Magnetic Phenomena)

Section cross-reference(s): 56

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6183832	B1	20010206	US 1998-173476	19981014
PRAI	US 1998-173476		19981014		

AB The magnetic multilayer structure contains: (a) top film 10-500 .ANG. thick of the magnetic Co alloy contg. Cr 0-30, Pt 0-40, and B 10-25 at.% with Co at 40-75 at.%; (b) similar Co-alloy interlayer 1-100 .ANG. thick for nucleation control, and contg. 50-75 at.% Co with Cr 15-40, Pt 0-15, and B 0-10 at.%; (c) metal or alloy interlayer film having bcc. crystallog. structure, esp. as Cr, Ru, or their alloys; and (d) hard-disk substrate, esp. Al precoated with Ni-P alloy layer. The magnetic layered structure with the nucleation alloy interlayer is suitable for the magnetic Co-alloy layer having coercive force of 2000-5000 Oe, the grain size of 30-200 .ANG., and anisotropic crystallog. orientation with the c-axis in the layer plane. The typical nucleation interlayer is Co71Cr17Pt12, and increases magnetic coercive force of the top Co71Cr17Pt12 B-contg. alloy layer to a max. at .apprx.12 at.% B, vs. only .apprx.5 at.% B without the interlayer. The layered-alloy structures are suitable for magnetic disks and related data-storage devices.

ST magnetic disk data storage layered alloy structure; cobalt chromium platinum boron alloy magnetic disk

IT Ceramics

(hard disk substrate, coating of; magnetic Co-Cr-Pt-B alloys with layered structure for data storage on hard disks)

IT Glass, uses

RL: DEV (Device component use); USES (Uses)

(hard disk substrate, coating of; magnetic Co-Cr-Pt-B alloys with layered structure for data storage on hard disks)

IT Coercive force (magnetic)

(layered alloy structure with; magnetic Co-Cr-Pt-B alloys with layered structure for data storage on hard disks)

IT Magnetic disks

(layered; magnetic Co-Cr-Pt-B alloys with layered structure for data

storage on hard disks)

IT Sputtering
(magnetic coating by; magnetic Co-Cr-Pt-B alloys with layered structure for data storage on hard disks)

IT 11146-55-7
RL: DEV (Device component use); USES (Uses)
(coating, hard disks with; magnetic Co-Cr-Pt-B alloys in layered coating for data storage on hard disks)

IT 7440-21-3, Silicon, uses 14808-60-7, Quartz, uses
RL: DEV (Device component use); USES (Uses)
(hard disk substrate, magnetic coating of; magnetic Co-Cr-Pt-B alloys in layered coating for data storage on hard disks)

IT 7429-90-5, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(hard disks; magnetic Co-Cr-Pt-B alloys in layered coating for data storage on hard disks)

IT 7440-18-8, Ruthenium, uses 7440-47-3, Chromium, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(interlayer; magnetic Co-Cr-Pt-B alloys in layered coating for data storage on hard disks)

IT 130957-81-2
RL: TEM (Technical or engineered material use); USES (Uses)
(interlayer; magnetic Co-Cr-Pt-B alloys with layered structure for data storage on hard disks)

IT 7440-42-8, Boron, uses
RL: MOA (Modifier or additive use); USES (Uses)
(magnetic alloys with; magnetic Co-Cr-Pt-B alloys in layered coating for data storage on hard disks)

IT 321993-81-1 321993-82-2
RL: TEM (Technical or engineered material use); USES (Uses)
(**magnetic recording** with; magnetic Co-Cr-Pt-B alloys with layered structure for data storage on hard disks)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Doerner; US 5523173 1996
- (2) Glijer, P; Magnetic force microscopy (MFM) studies of micromagnetic structures of high coercivity CoCrPt/Cr and CoCrPtBCr thin films 1995, V31(6), P2842 CAPLUS
- (3) Glijer, P; Structural design of CoCrPt(Ta,B)/Cr magnetic thin film media for ultra high density longitudinal magnetic recording 1995, V33(10/11), P1575 CAPLUS
- (4) Murayama; US 5478661 1995
- (5) Oka; US 5494722 1996 CAPLUS
- (6) Song, L; "Magnetic properties and recording performance of multilayer films of CoCrTa, CoCrPtTa, and CoCrPtTa with CoCrPtB 1994, V30(6), P4011 CAPLUS
- (7) Tani, N; "High coercivity hard disk with CoCrPtB/Cr media", IEEE 1991, V27(6), P4736 CAPLUS

L9 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN

AN 2001:43445 CAPLUS

DN 134:109514

TI Thin film magnetic disk having reactive element doped refractory metal seed layer

IN Bian, Xiaoping; Duan, Shanlin; Li, Jinshan; Mirzamaani, Mohammad

PA International Business Machines Corporation, USA

SO U.S., 7 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM G11B005-66

NCL 428065300

CC 77-8 (Magnetic Phenomena)

Section cross-reference(s): 56, 75

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6174582	B1	20010116	US 1998-20151	19980206
PRAI	US 1998-20151		19980206		
AB	A method of fabricating a thin film magnetic disk includes depositing a seed layer of a refractory metal such as Ta, Cr, Nb, W, V, or Mo and a reactive element such as N or O; depositing a nonmagnetic underlayer onto the seed layer; and depositing a magnetic layer. The thin film magnetic disk has a substrate; a seed layer comprising Ta and at least .apprx.1 at.-% of N or O; an underlayer comprising Cr or an alloy of Cr deposited onto the seed layer, the underlayer preferably having a preferred orientation of [200]; and a magnetic layer deposited onto the underlayer, the magnetic layer preferably having a preferred orientation of [1120]. A disk drive using the thin film magnetic disk is also presented.				
ST	film magnetic disk nitrogen oxygen doped metal seed layer; tantalum chromium niobium tungsten vanadium molybdenum doped seed layer				
IT	Actuators (disk drive, rotary; thin film magnetic disk having reactive element doped refractory metal seed layer)				
IT	Ceramics (substrate; thin film magnetic disk having reactive element doped refractory metal seed layer)				
IT	Glass, uses RL: DEV (Device component use); USES (Uses) (substrate; thin film magnetic disk having reactive element doped refractory metal seed layer)				
IT	Magnetic disks Magnetic films Magnetic recording heads Sputtering (thin film magnetic disk having reactive element doped refractory metal seed layer)				
IT	Refractory metals RL: DEV (Device component use); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses) (thin film magnetic disk having reactive element doped refractory metal seed layer)				
IT	319488-78-3 Boron 2-6, chromium 18-23, cobalt 59-76, platinum 4-12 (atomic) 319488-79-4, Chromium 18-23, cobalt 59-76, platinum 4-12, tantalum 2-6 (atomic) RL: DEV (Device component use); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses) (magnetic layer; thin film magnetic disk having reactive element doped refractory metal seed layer)				
IT	7440-44-0, Carbon, processes RL: DEV (Device component use); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses) (protective overcoat; thin film magnetic disk having reactive element doped refractory metal seed layer)				
IT	7439-98-7, Molybdenum, processes 7440-03-1, Niobium, processes 7440-25-7, Tantalum, processes 7440-33-7, Tungsten, processes 7440-47-3, Chromium, processes 7440-62-2, Vanadium, processes RL: DEV (Device component use); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses) (thin film magnetic disk having reactive element doped refractory metal seed layer)				
IT	7727-37-9, Nitrogen, uses 7782-44-7, Oxygen, uses RL: MOA (Modifier or additive use); NUU (Other use, unclassified); USES (Uses) (thin film magnetic disk having reactive element doped refractory metal				

seed layer)
IT 165807-23-8, Chromium 95, titanium 5 (atomic)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(underlayer coating; thin film magnetic disk having reactive element doped refractory metal seed layer)

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Colgan; US 5221449 1993 CAPLUS
- (2) Colgan; US 5281485 1994 CAPLUS
- (3) Howard; US 4632883 1986 CAPLUS
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- (9) Lee; J Appl Phys 1996, V79(8), P4902 CAPLUS
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L9 ANSWER 8 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN

AN 2000:687916 CAPLUS

DN 133:246419

TI Magnetic data-storage sputtering targets and methods for preparation

IN Bartholomeusz, Michael; Tsai, Michael

PA Heraeus, Inc., USA

SO U.S., 35 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM H01F001-14

NCL 148312000

CC 77-8 (Magnetic Phenomena)

Section cross-reference(s): 56

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6123783	A	20000926	US 1997-946360	19971007
	US 6432223	B1	20020813	US 2000-546015	20000410
PRAI	US 1997-38031P	P	19970206		
	US 1997-946360	A3	19971007		

AB A method for making a magnetic data storage target includes warm-rolling a magnetic alloy sheet at a temp. of .ltorsim.1200.degree. F., optimally followed by annealing. The method results in increased pass-through-flux (PTF) and improved performance in magnetron sputtering applications.

ST **magnetic recording** sputtering target rolling
annealing; alloy **magnetic recording** sputtering target
rolling annealing; metal **magnetic recording** sputtering
target rolling annealing

IT **Magnetic recording** materials

Magnetron sputtering

Sputtering targets

(magnetic data-storage sputtering targets and methods for prepn.)

IT Annealing

Cold rolling

(magnetic data-storage sputtering targets and methods for prepn. using)

IT Alloys, processes

Metals, processes

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(magnetic; magnetic data-storage sputtering targets and methods for

prepn.)

IT Rolling (metals)
(warm; magnetic data-storage sputtering targets and methods for prepn. using)

IT Cobalt alloy, base
Nickel alloy, base
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(magnetic data-storage sputtering targets and methods for prepn.)

IT 7440-02-0, Nickel, processes 7440-48-4, Cobalt, processes 159455-25-1, Chromium 10, cobalt 86, tantalum 4 (atomic) 228254-68-0, Chromium 12, cobalt 74, nickel 10, tantalum 4 (atomic) 256455-58-0, Chromium 15, cobalt 75, platinum 6, tantalum 4 (atomic) 293741-83-0, Chromium 16, cobalt 73, platinum 11 (atomic) 293741-84-1, Boron 6, chromium 20, cobalt 64, platinum 10 (atomic) 293741-85-2, Chromium 0-40, cobalt 0-100, nickel 0-100, tantalum 0-8 (atomic) 293741-86-3, Chromium 0-40, cobalt 0-100, nickel 0-100, platinum 0-30, tantalum 0-8 (atomic) 293741-87-4, Boron 0-30, chromium 0-40, cobalt 0-100, nickel 0-100, tantalum 0-8 (atomic) 293741-88-5, Chromium 0-40, cobalt 0-100, nickel 0-100, silicon 0-30, tantalum 0-8 (atomic) 293741-89-6, Chromium 0-40, cobalt 0-100, nickel 0-100, tantalum 0-8, zirconium 0-30 (atomic) 293741-90-9, Chromium 0-40, cobalt 0-100, iron 0-30, nickel 0-100, tantalum 0-8 (atomic) 293741-91-0, Chromium 0-40, cobalt 0-100, nickel 0-100, tantalum 0-8, tungsten 0-30 (atomic) 293741-92-1, Chromium 0-40, cobalt 0-100, molybdenum 0-30, nickel 0-100, tantalum 0-8 (atomic) 293741-93-2, Chromium 0-40, cobalt 0-100, nickel 0-100, tantalum 0-8, vanadium 0-30 (atomic) 293741-94-3, Chromium 0-40, cobalt 0-100, nickel 0-100, niobium 0-30, tantalum 0-8 (atomic) 293741-95-4, Chromium 0-40, cobalt 0-100, hafnium 0-30, nickel 0-100, tantalum 0-8 (atomic) 293741-96-5, Chromium 0-40, cobalt 0-100, nickel 0-100, tantalum 0-8, titanium 0-30 (atomic) 293741-97-6, Chromium 0-40, cobalt 0-100, nickel 0-100, samarium 0-30, tantalum 0-8 (atomic)
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(magnetic data-storage sputtering targets and methods for prepn.)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; JP 1100219 1989
- (2) Chan, L; Journal of Magnetism and Magnetic Materials 1989, V79, P95 CAPLUS
- (3) Inoue; US 5500057 1996 CAPLUS
- (4) Taniguchi; US 5334267 1994 CAPLUS
- (5) Weigert, M; Materials Science and Engineering 1991, VA139, P359 CAPLUS

L9 ANSWER 9 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN

AN 2000:643293 CAPLUS

DN 133:260589

TI **Magnetic recording media**

IN Futamoto, Masaaki; Inaba, Nobuyuki; Hirayama, Yoshiyuki; Takeuchi, Teruaki; Honda, Yukio

PA Hitachi, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G11B005-66

CC 77-8 (Magnetic Phenomena)

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000251237	A2	20000914	JP 1999-45884	19990224
	JP 3157806	B2	20010416		
	US 6383667	B1	20020507	US 1999-413813	19991007

US 2002068199 A1 20020606 US 2001-1995 20011205
 US 6541125 B2 20030401
 PRAI JP 1998-288134 A 19981009
 JP 1999-45884 A 19990224
 US 1999-413813 A1 19991007
 AB The recording media comprise Co alloy magnetic films and Co-Crx-My base
 films, where M = nonmagnetic elements such as B, and 25 .ltoreq. x + y
 .ltoreq. 50 (at.%).
 ST **magnetic recording** media cobalt alloy
 IT Magnetic films

Magnetic recording materials
 (magnetic recording media with Co alloy magnetic
 films)

IT Cobalt alloy, base
 RL: DEV (Device component use); USES (Uses)
 (magnetic recording media with magnetic films from)
 IT **294626-73-6**, Boron 6, chromium 25, cobalt 69 (atomic)
 294626-75-8, Chromium 25, cobalt 67, silicon 8 (atomic) 294626-77-0,
 Chromium 25, cobalt 65, germanium 10 (atomic) 294626-79-2, Aluminum 4,
 chromium 25, cobalt 71 (atomic) 294626-81-6, Chromium 25, cobalt 69,
 phosphorus 6 (atomic) 294626-83-8, Chromium 25, cobalt 69, titanium 6
 (atomic) 294626-85-0, Chromium 25, cobalt 65, vanadium 10 (atomic)
 294626-87-2, Chromium 25, cobalt 71, zirconium 4 (atomic) 294626-89-4,
 Chromium 25, cobalt 67, niobium 8 (atomic) 294626-91-8, Chromium 25,
 cobalt 69, hafnium 6 (atomic) 294626-93-0, Chromium 25, cobalt 65,
 manganese 10 (atomic) 294626-95-2, Chromium 25, cobalt 63, rhodium 12
 (atomic) 294626-97-4, Chromium 25, cobalt 57, iridium 18 (atomic)
 294626-99-6, Chromium 25, cobalt 61, rhenium 14 (atomic) 294627-01-3,
 Chromium 25, cobalt 67, palladium 8 (atomic) 294627-03-5, Chromium 25,
 cobalt 69, platinum 6 (atomic) 294627-05-7, Chromium 25, cobalt 71,
 molybdenum 4 (atomic) 294627-07-9, Chromium 25, cobalt 67, tungsten 8
 (atomic) 294627-09-1, Chromium 25, cobalt 71, silver 4 (atomic)
 294627-11-5, Chromium 25, cobalt 69, gold 6 (atomic)
 RL: DEV (Device component use); USES (Uses)
 (magnetic recording media with base films from)

L9 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN
 AN 1999:748197 CAPLUS
 DN 131:345575
 TI Thin film disk with acicular magnetic grains
 IN Marinero, Ernesto Esteban; Reith, Timothy Martin; York, Brian Rodrick
 PA International Business Machines Corporation, USA
 SO U.S., 9 pp.
 CODEN: USXXAM

DT Patent
 LA English
 IC ICM G11B005-66
 NCL 428065300
 CC 77-8 (Magnetic Phenomena)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5989674	A	19991123	US 1998-79907	19980515
	SG 87030	A1	20020319	SG 1999-2139	19990507
PRAI	US 1998-79907	A	19980515		

AB A thin film disk and a disk drive using the thin film disk are described.
 The disk has a thin film magnetic layer composed of small acicular grains
 having an av. aspect ratio greater than one which results in improved
 recording performance. The development of the acicularity is aided
 through the crystal structure having anisotropic inplane stress with a
 radial stress being less than a tangential stress. The preferred magnetic
 material is an alloy Co which includes a glass forming material such as B,
 B oxide, Si, Si oxide, C, P, etc. The typical hcp. unit cells form
 acicular grains with a tendency for the C-axis to be orthogonal to a long

axis of the acicular grains. Preferably the C-axis of the grains is oriented along the circumferential direction of the disk. Preferably the underlayer is sputtered deposited using neg. bias.

- ST film disk acicular magnetic grain recording device; crystal structure orientation axis mech stress **magnetic recording** device; material magnetic cobalt glass forming boron silicon oxide device; sputtering deposition neg potential bias substrate **magnetic recording** device
- IT Grains (particles)
(magnetic; thin film disk with acicular magnetic grains)
- IT Glass, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(substrate; thin film disk with acicular magnetic grains)
- IT Bias potential
(surface substrate while sputtering; thin film disk with acicular magnetic grains)
- IT Crystal orientation
Crystal structure
Magnetic films
Magnetic memory devices
Magnetic recording
Sputtering
Stress, mechanical
(thin film disk with acicular magnetic grains)
- IT 1303-86-2, Boron oxide, processes 7440-42-8, Boron, processes 7440-44-0, Carbon, processes 7631-86-9, Silicon oxide, processes 7723-14-0, Phosphorus, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(glass forming material; thin film disk with acicular magnetic grains)
- IT 7440-48-4, Cobalt, processes 54426-05-0, Cobalt alloy, Co, B 177899-00-2, Cobalt alloy, Co,B,Cr,Pt
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(magnetic material; thin film disk with acicular magnetic grains)
- IT 7440-47-3, Chromium, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(substrate underlayer; thin film disk with acicular magnetic grains)
- IT 12035-46-0, Nickel phosphide (NiP) 12615-43-9, Aluminum 50, magnesium 50 (atomic)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(substrate; thin film disk with acicular magnetic grains)
- IT 7440-21-3, Silicon, processes **249647-15-2**, Boron 2-20, chromium 10-23, cobalt 45-84, platinum 4-12 (atomic)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(thin film disk with acicular magnetic grains)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Arnoldussen, T; IEEE Trans on Magnetism 1984, VMAG-20(5), P821
- (2) Baseman; US 5053250 1991 CAPLUS
- (3) Chen; US 4405677 1983 CAPLUS
- (4) Doerner; US 5523173 1996
- (5) Hedgcoth; US 4735840 1988 CAPLUS
- (6) Jones; US 5490809 1996
- (7) Kawamoto, A; J Appl Phys 1991, V69(8), P5151 CAPLUS
- (8) Kneller; US 4287225 1981 CAPLUS
- (9) Laughlin, E; IEEE Trans on Magnetism 1996, V32(5), P3632
- (10) Miyamoto; US 5352501 1994
- (11) Nakamura; US 5147734 1992 CAPLUS
- (12) Shimizu; US 5516547 1996 CAPLUS

- (13) Teng; US 5620574 1997
 (14) Teng, E; IEEE Trans on Magnetics 1986, VMAG-22(5), P579
 (15) Togawa; US 4480004 1984 CAPLUS

L9 ANSWER 11 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN
 AN 1996:212161 CAPLUS
 DN 124:305319
 TI Metal film **magnetic recording** material
 IN Yo, Kyoha; Akita, Ken; Maeda, Makoto; Okumura, Yoshinobu
 PA Kubota Kk, Japan
 SO Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01F010-16
 ICS G11B005-66
 CC 77-8 (Magnetic Phenomena)
 Section cross-reference(s): 56

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08031638	A2	19960202	JP 1994-164122	19940715
PRAI	JP 1994-164122		19940715		
AB	The material consists of a nonmagnetic support successively coated with an underlayer, a Co alloy magnetic layer contg. Cr 6-20, Ta .ltoreq.9, and Cu 0.5-7 at.%, and a protective layer. The material may contain .ltoreq.20 at.% Pt and .ltoreq.8 at.% B. The material shows high coercive force.				
ST	recording magnetic cobalt alloy				
IT	Recording materials (magnetic, magnetic recording material having copper-contg. cobalt alloy magnetic layer with high coercive force)				
IT	175785-17-8	175785-18-9	175785-19-0	175863-41-9	175863-42-0
	175863-43-1				
	RL: DEV (Device component use); USES (Uses) (magnetic recording material having copper-contg. cobalt alloy magnetic layer with high coercive force)				
IT	175785-16-7 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses) (magnetic recording material having copper-contg. cobalt alloy magnetic layer with high coercive force)				
IT	7440-50-8, Copper, uses RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses) (microalloying element; magnetic recording material having copper-contg. cobalt alloy magnetic layer with high coercive force)				
IT	7440-44-0, Carbon, uses RL: DEV (Device component use); USES (Uses) (protective layer; magnetic recording material having copper-contg. cobalt alloy magnetic layer with high coercive force)				
IT	7429-90-5, Aluminum, uses 11149-64-7 RL: DEV (Device component use); USES (Uses) (substrate; magnetic recording material having copper-contg. cobalt alloy magnetic layer with high coercive force)				
IT	7440-47-3, Chromium, uses RL: DEV (Device component use); USES (Uses) (underlayer; magnetic recording material having copper-contg. cobalt alloy magnetic layer with high coercive force)				

L9 ANSWER 12 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN
 AN 1996:172175 CAPLUS
 DN 124:276598

TI Magnetic disk recording medium
 IN Yokoyama, Fumiaki
 PA Mitsubishi Chemical Corp., Japan
 SO U.S., 13 pp. Cont. of U.S. Ser. No. 500,994, abandoned.
 CODEN: USXXAM
 DT Patent
 LA English
 IC ICM B32B003-02
 ICS G11B005-66; C23C014-00
 NCL 428065300
 CC 77-8 (Magnetic Phenomena)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5492745	A	19960220	US 1994-194636	19940210
PRAI	JP 1989-84945		19890404		
	JP 1989-84947		19890404		
	US 1990-500994		19900329		

AB A **magnetic recording** medium comprises a nonmagnetic substrate and a magnetic alloy layer formed on the substrate with a nonmagnetic primer layer contg. Cr as the main component interposed between them, where the magnetic alloy layer contains Co and Ni as the main components and .ltoreq.8 at.% B and has been formed by sputtering under such a condition that a neg. bias voltage is applied to the nonmagnetic substrate.

ST magnetic disk recording medium

IT Sputtering

(deposition by; of cobalt alloy layers for **magnetic recording** disks)

IT Recording materials

(magnetic, cobalt alloy sputtered layers for disks)

IT 134762-92-8, Boron 3, cobalt 67, nickel 30 (atomic) 175081-84-2, Boron 0.4, cobalt 79.7, nickel 19.9 (atomic) 175081-85-3, Boron 1, cobalt 79.2, nickel 19.8 (atomic) 175081-86-4, Boron 2.3, cobalt 78.2, nickel 19.5 (atomic) 175081-87-5, Boron 3.7, cobalt 77, nickel 19.3 (atomic) 175081-88-6, Boron 6, cobalt 75.2, nickel 18.8 (atomic) 175081-89-7, Boron 8, cobalt 73.6, nickel 18.4 (atomic) 175081-90-0, Boron 2.3, cobalt 66.1, nickel 31.6 (atomic) 175081-91-1, Boron 1, chromium 7.9, cobalt 73.4, nickel 17.7 (atomic) 175081-92-2, Boron 3.7, chromium 7.7, cobalt 71.3, nickel 17.3 (atomic) 175081-93-3, Boron 5, chromium 7.6, cobalt 70.3, nickel 17.1 (atomic) 175081-94-4, Boron 8, chromium 7.4, cobalt 68, nickel 16.6 (atomic) 175081-95-5, Boron 3, chromium 7, cobalt 61, nickel 29 (atomic) **175385-91-8**, Boron 1-7, chromium 5-26, cobalt 40-94, nickel 0-27 (atomic)

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(magnetic disk recording materials having sputtered layers of)

L9 ANSWER 13 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN

AN 1995:924223 CAPLUS

DN 123:347029

TI Structural design of CoCrPt(Ta,B)/Cr magnetic thin film media for ultra high density longitudinal **magnetic recording**

AU Glijer, Pawel; Sin, Kyusik; Sivertsen, John M.; Judy, Jack H.

CS Cent. Micromagnetics Inf. Technol., Univ. Minnesota, Minneapolis, MN, 55455, USA

SO Scripta Metallurgica et Materialia (1995), 33(10/11), 1575-84

CODEN: SCRMEX; ISSN: 0956-716X

PB Elsevier

DT Journal

LA English

CC 56-8 (Nonferrous Metals and Alloys)

Section cross-reference(s): 77

AB CoCrPt(Ta,B) thin films with Cr underlayers were studied as potential

candidates for ultra-high d. **magnetic recording** media for data storage at 10 Gbits/in. The exptl. approach used was aimed at an anal. of the structure-properties relationships in these thin films. As a result structural and compn. changes resulting in magnetic and noise properties have been identified. It has been shown that very high in-plane coercivities of 2700 Oe and above could be obtained in CoCrPt films with Pt contents <20 at.%; in CoCrPtTa for Pt contents <12% Pt (with 2.5-5% Ta) and in CoCrPtB (with 3-7% B) for Pt contents <11%. Also methods for improvement of coercivity squareness, noise characteristics and refinement of grain size and surface roughness have been demonstrated.

ST structural design magnetic thin film; cobalt alloy magnetic thin film; longitudinal **magnetic recording** film

IT Recording materials
(magnetic, ultra high d. longitudinal; structural design of CoCrPt(Ta,B)/Cr magnetic thin film media for)

IT 170892-83-8
RL: PRP (Properties)
(structural design of CoCrPt(Ta,B)/Cr magnetic thin film media for ultra high d. longitudinal **magnetic recording**)

IT 7440-47-3, Chromium, properties 159828-68-9, Chromium 13, cobalt 74, platinum 13 (atomic) 159828-70-3, Boron 8, chromium 17, cobalt 72, platinum 3 (atomic) 170892-84-9 170892-85-0
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(structural design of CoCrPt(Ta,B)/Cr magnetic thin film media for ultra high d. longitudinal **magnetic recording**)

L9 ANSWER 14 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN

AN 1995:63037 CAPLUS

DN 122:44686

TI Remanent magnetization study of magnetic interactions in CoCrPtB/Cr thin films

AU Glijer, Pawel; Sivertsen, John M.; Judy, Jack H.

CS Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, 55455, USA

SO Proceedings - Electrochemical Society (1994), 94-6 (Magnetic Materials, Processes, and Devices), 235-47
CODEN: PESODO; ISSN: 0161-6374

DT Journal

LA English

CC 77-8 (Magnetic Phenomena)

AB High coercivity CoCrPtB/Cr thin films are considered good candidates for very high d. longitudinal **magnetic recording** media. Such media should have high coercivity, very low noise and low remanent magnetization-thickness product (Mr.delta.). Remanent magnetization studies of low Mr.delta. product CoCrPtB/Cr thin films with different compns. were performed. Anal. of the remanent behavior of the films allows for estn. of intergranular interactions and noise of the medium. Addn. of B and Pt causes coercivity increase (up to 3600 Oe) and also magnetic decoupling of the grains in the film. The dc-erase remanent curves obtained show that grains or groups of grains in the CoCrPtB films switch independently of each other. This result as well as small grain diams. obsd. in CoCrPtB films suggest that possible pptn. of borides on the grain boundaries decouples exchange interactions between grains of the magnetic films. Such decoupled CoCrPtB/Cr films exhibit very low noise at high recording densities.

ST cobalt chromium platinum boron recording film

IT Coercive force, magnetic
Magnetic remanence
(remanent magnetization study of magnetic interactions in CoCrPtB/Cr recording films)

IT Recording materials
(magnetic, film; remanent magnetization study of magnetic interactions in CoCrPtB/Cr recording films)

IT 7440-47-3, Chromium, properties 84241-62-3, Chromium 16, cobalt 84 atomic 159828-67-8, Chromium 15, cobalt 82, platinum 3 (atomic) 159828-68-9, Chromium 13, cobalt 74 platinum 13 (atomic) 159828-69-0, Boron 10 chromium 16, cobalt 74 (atomic) 159828-70-3, Boron 8 chromium 17 cobalt 72 platinum 3 (atomic) 159828-71-4, Boron 5 chromium 11 cobalt 81 platinum 3 (atomic) 159828-72-5, Boron 5 chromium 14 cobalt 69 platinum 12 (atomic) RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (remanent magnetization study of magnetic interactions in CoCrPtB/Cr recording films)

L9 ANSWER 15 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1994:181453 CAPLUS
DN 120:181453
TI Sputtering target material for **magnetic recording** film and its manufacture
IN Okumura, Yoshinobu; Funakoshi, Atsushi; Nishi, Takashi
PA Kubota Kk, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C23C014-34
ICS C22C001-04; C22C019-07
CC 77-8 (Magnetic Phenomena)
Section cross-reference(s): 56

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 05263232	A2	19931012	JP 1992-92227	19920317
PRAI	JP 1992-92227		19920317		
AB	The material with relative d. .gtoreq.98% consists of a Co alloy sintered body contg. 6-17 at.% Cr and 0.8-10 at.% B. The material is manufd. by filling a metal vessel with atomized alloy powders with the above compns. and particle size .ltoreq.22 mesh, degassing, sealing up, and HIP(hot isostatic pressing)-sintering. The obtained film showed good coercive force and square-loop ratio.				
ST	cobalt alloy sputtering target HIP; recording magnetic cobalt alloy target; boron chromium cobalt alloy target				
IT	Recording materials (magnetic, cobalt alloy film, sputtering target for, HIP sintering of, with good coercive force and square-loop ratio)				
IT	Sputtering (targets, cobalt alloy, HIP sintering of, for magnetic recording film, with good coercive force and square-loop ratio)				
IT	153563-19-0 153563-20-3 153563-21-4 153563-22-5 153563-23-6 RL: USES (Uses) (sputtering target, HIP sintering of, for magnetic recording film, with good coercive force and square-loop ratio)				

L9 ANSWER 16 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1990:543745 CAPLUS
DN 113:143745
TI Phases and magnetic properties of the devitrified metallic glasses cobalt-chromium-boron (Co66Cr14B20) and iron-chromium-nickel-boron (Fe43Cr25Ni20B12)
AU Henderson, L.; O'Handley, R. C.; Averbach, B. L.
CS Dep. Mater. Sci. Eng., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA
SO Journal of Magnetism and Magnetic Materials (1990), 87(1-2), 142-6
CODEN: JMMMD; ISSN: 0304-8853
DT Journal

LA English
 CC 77-1 (Magnetic Phenomena)
 Section cross-reference(s): 55, 56
 AB Devitrification of amorphous melt-spun ribbons with compns. of Co₆₆Cr₁₄B₂₀ and Fe₄₃Cr₂₅Ni₂₀B₁₂ was investigated as a method of making fine dispersions of magnetic phases within a non-magnetic matrix. Such a process may ultimately be applied to amorphous films to produce solid-state dispersions of particles that possess magnetic properties suitable for **magnetic recording** purposes. The ribbons were isochronally annealed so as to cause a large no. of magnetic particles to ppt. out of a glassy matrix. The Co-based ribbons devitrified to form a series of Cr-borides and cubic (CoCr)₂₃B₆. The coercivity and satn. magnetization varied systematically with heat-treatment temp., both reaching their max. values of 530 Oe and approx. 300 G for TA = 610.degree.. The Fe-based ribbons first devitrified to form ferromagnetic .alpha.-iron which transformed to paramagnetic Ni-rich austenite upon annealing at higher temps. The annealed Fe-based ribbons displayed a max. specific magnetization of approx. 400 G and a max. coercivity of 424 Oe. However, these two properties are not maximized at the same temp.
 ST coercivity metallic glass devitrification; magnetization metallic glass devitrification; cobalt alloy glass devitrification magnetism; iron alloy glass devitrification magnetism; chromium alloy glass devitrification magnetism; phase compn devitrification VIII alloy glass
 IT Coercive force, magnetic
 Magnetic induction and Magnetization
 (of boron-chromium-cobalt and boron-chromium-iron-nickel devitrified metallic glasses)
 IT Metallic glasses
 RL: USES (Uses)
 (boron-chromium-cobalt, magnetic properties and phase decompn. of devitrified)
 IT Metallic glasses
 RL: USES (Uses)
 (boron-chromium-iron-nickel, magnetic properties and phase decompn. of devitrified)
 IT 99628-38-3, Boron 12, chromium 25, iron 43, nickel 20 (atomic)
 129517-57-3, Boron 20, chromium 14, cobalt 66 (atomic)
 RL: PRP (Properties)
 (magnetic properties and phases o devitrified glassy)
 L9 ANSWER 17 OF 17 CAPLUS COPYRIGHT 2003 ACS on STN
 AN 1986:140849 CAPLUS
 DN 104:140849
 TI **Magnetic recording** medium
 IN Shirahata, Ryuji; Tamai, Yasuo; Kitamoto, Tatsuji
 PA Fuji Photo Film Co., Ltd., Japan
 SO Jpn. Tokkyo Koho, 4 pp.
 CODEN: JAXXAD
 DT Patent
 LA Japanese
 IC H01F001-04; G11B005-66
 CC 77-8 (Magnetic Phenomena)
 Section cross-reference(s): 56
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60032964	B4	19850731	JP 1977-153428	19771220
	JP 54085398	A2	19790706		
PRAI	JP 1977-153428		19771220		

AB The fabrication of a wear-resistant **magnetic recording** medium involves vacuum deposition or ion plating of a ferromagnetic metal thin film (e.g., Co 97-99.8, B 0.2-3.0) contg. Co .gtoreq.75, B 0.2-3.0, and N 0-2.0 wt.% on a nonmagnetic substrate.

ST cobalt boron nitrogen alloy recording
IT Recording materials
 (magnetic, cobalt-boron-nitrogen alloy films, wear-resistant)
IT 101071-07-2 101071-08-3 101071-09-4 101071-10-7
RL: PRP (Properties)
 (magnetic recording films, wear-resistant)

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